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THE VIRULENCE OF THE TUBERCLE BACILLI ISOLATED FROM THE SPUTUM

H. J. Corper

From the Laboratories of the Municipal Tuberculosis Sanitarium, Chicago

It is rather singular that the tubercle bacillus was one of the first pathogenic micro-organisms isolated in pure culture, and yet its virulence in the sputum, the most important route of exit from the body in man, has been studied only in an unsatisfactory manner considered from a hygienic and sanitary standpoint.

Villemin as early as 1865 noted that tuberculous material from man and cattle was not equally infectious to certain animals, but even Koch paid no heed to this important fact until it was indelibly impressed on the scientific world by Theobald Smith in 1898 when he presented his proof absolutely differentiating the human and bovine tubercle bacillus. On account of the lack of this data virulence tests, such as they may have been before this time, were of no practical value.

Smith[1] studied the tubercle bacilli obtained from the sputum of 7 consumptives, the material from a dog infected by his master, 6 bovine specimens, 1 from a swine, 1 from a cat and 1 from a horse by passage through guinea-pigs and subsequent cultivation on dog's serum. His emulsions for inoculation were made rather crudely, "equal in density to that of a bouillon culture of typhoid bacilli 20-24 hours old and nearly as homogeneous." He noted a sharp distinction between bovine and human bacilli when injected intravenously into rabbits, the former causing early death (17-21 days) and generalized tuberculosis, while the latter was so innocuous that the rabbits lived over 35 days with only a pulmonary tuberculosis in most cases. Among the sputum forms he noted variations in size, in capacity for cultivation and in pathogenic activity. In a paper read before the American Climatological Association in 1898,[2] he points out 2 important factors active in the production of disease; the virulence or pathogenic activity of the organism, and the resistance of the infected individual, and in criticizing Arloing's conclusions regarding the difference between bacilli

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[1] Jour. Exper. Med., 1898, 3, p. 451.

[2] Smith, Theobald: Tr. Am. Climatolog. Assn., 1898, 14, p. 193.